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Accession number & update

7313755, B2002-08-3120B-007; 20020701.

Title

Structured iteratively decodable **codes** based on **Steiner** systems and their application in magnetic recording.

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2001.

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Treatment codes

T Theoretical or Mathematical.

Abstract

This paper introduces a combinatorial construction of a class of iteratively decodable **codes**, an approach diametrically opposed to the prevalent practice of using large, random-like **codes**. Our **codes** are well-structured and, unlike random **codes**, can lend themselves to a very low complexity implementation. A systematic way of constructing **codes** based on **Steiner** systems and the $Z/\text{sub } nu /$, group is presented, and a hardware efficient encoding algorithm is proposed. A substantial performance improvement of high-rate **Steiner codes** over the existing schemes used in magnetic recording systems is demonstrated. (38 refs).

Descriptors

combinatorial-mathematics; iterative-decoding; magnetic-recording;
random-codes.

Keywords

combinatorial construction; iteratively decodable **codes**; random like **codes**; hardware efficient encoding algorithm; performance; high rate **Steiner codes**; magnetic recording systems.

Classification codes

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B6120B (**Codes**).
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